

REMARKS

Summary of the Office Action

In the Final Office Action dated May 21, 2003, claims 1, 4-12 and 15-16 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 6-7, 9-10, 12 and 15-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over applicant's allegedly admitted prior art of Fig. 1 in view of U.S. Patent No. 6,157,043 to Miyamoto (hereinafter "Miyamoto"). Claims 4-5, 8 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over applicant's allegedly admitted prior art of Fig. 1 in view of Miyamoto as applied to claims 1, 7 and 10 above, and further in view of U.S. Patent No. 6,183,714 to Smalley et al. (hereinafter "Smalley").

Summary of the Response to the Office Action

A Submission of Replacement Drawing Sheets incorporating the amendment proposed in the Request for Approval of Drawing Changes filed on February 25, 2003 is being filed concurrently herewith. Applicants propose to amend claims 1, 7, 10 to describe the invention differently, to amend claims 4-6 to improve the form these claims, and to add new claims 17-20. Accordingly, claims 1, 4-12 and 15-20 are now pending in this application.

Submission of Replacement Drawing Sheets

A Submission of Replacement Drawing Sheets incorporating the amendment proposed in the Request for Approval of Drawing Changes filed on February 25, 2003 is being filed concurrently herewith.

Rejections under 35 U.S.C. § 112, Second Paragraph

Claims 1, 4-12 and 15-16 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicants propose to amend claims 1, 7, 10 to describe the invention differently, and to amend claims 4-6 to improve the form these claims. Applicants respectfully submit that independent claims 1, 7 and 10, as amended, and dependent claims 4-6, 8-9 and 11-12 and 15-16, fully comply with the requirements of 35 U.S.C. § 112, second paragraph. Accordingly, Applicants respectfully request that the rejection of claims 1, 4-12 and 15-16 under 35 U.S.C. § 112, second paragraph, be withdrawn.

The Rejections under 35 U.S.C. § 103(a)

Claims 1, 6-7, 9-10, 12 and 15-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' allegedly admitted prior art of Fig. 1 in view of Miyamoto. Claims 4-5, 8 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over applicant's allegedly admitted prior art of Fig. 1 in view of Miyamoto as applied to claims 1, 7 and 10 above, and further in view of Smalley.

Applicants propose to amend claims 1, 7, 10 to describe the invention differently.

Independent claim 1, as amended, recites an inductor comprising:

a plurality of catalysts located on the substrate, wherein the catalysts include transition metals, and the catalysts comprise a plurality of crystal faces; and carbon nanotubes and/or carbon nanofibers synthesized between the catalysts, wherein the carbon nanotubes and/or carbon nanofibers are grown on the crystal faces of the catalysts, the carbon nanotubes and/or carbon nanofibers being entangled with each other, thereby growing in a shape of a coil.

Applicants respectfully submit that this amendment is fully supported by the specification as filed. Applicants further submit that Miyamoto does not teach or suggest at least the features of the amended claim 1 recited above. Moreover, Applicants respectfully submit that Smalley fails to cure the deficiencies discussed above with regard to the combination of the arrangement shown in Fig. 1 and Miyamoto.

Independent claim 7, as amended, recites an inductor comprising:

a plurality of catalysts located on the substrate, wherein the catalysts comprise a plurality of crystal faces; and an aggregate of carbon nanotubes and/or carbon nanofibers synthesized between the catalysts, wherein the carbon nanotubes and/or carbon nanofibers are grown on the crystal faces of the catalysts, the carbon nanotubes and/or carbon nanofibers being compressed and entangled with each other, thereby growing in a shape of a coil.

Applicants respectfully submit that this amendment is fully supported by the specification as filed. Applicants further submit that Miyamoto does not teach or suggest at least the features of the amended claim 7 recited above. Moreover, Applicants respectfully submit that Smalley fails to cure the deficiencies discussed above with regard to the combination of the arrangement shown in Fig. 1 and Miyamoto.

Independent claim 10, as amended, recites an inductor comprising a complex of carbon nanotubes and/or carbon nanofibers, a matrix such as an insulator, a ceramic, and a semiconductor with at least the features that:

the carbon nanotubes and/or carbon nanofibers are synthesized respectively in a shape of coils between a plurality of catalysts having crystal faces, wherein the carbon nanotubes and/or carbon nanofibers are grown on the crystal faces of the catalysts, the carbon nanotubes and/or carbon nanofibers being entangled with each other, wherein the matrix is ferrite, and wherein the complex contains magnetic powder such as ferrite powder added in the complex.

Applicants respectfully submit that this amendment is fully supported by the specification as filed. Applicants further submit that Miyamoto does not teach or suggest at least the features of the amended claim 10 recited above. Moreover, Applicants respectfully submit that Smalley fails to cure the deficiencies discussed above with regard to the combination of the arrangement shown in Fig. 1 and Miyamoto.

Moreover, in the instant invention as recited in claims 1, 7 and 10, as amended, the carbon nanotubes and/or carbon nanofibers are entangled with each other to form a coil. On the contrary, in the method of making ropes of single wall carbon nanotubes of Smalley, as depicted in Figures 2A-2E and as discussed at column 4, lines 40-50 of Smalley, the single-wall carbon nanotubes of Smalley run parallel to each other.

Furthermore, in the instant invention as recited in independent claims 1, 7 and 10, as amended, the carbon nanotubes are shaped in accordance with the crystal faces of the catalysts. On the contrary, as stated at page 3 of the Office Action, "Miyamoto further discloses the use of stressing the carbon nanotube to form a shape." As recited at column 2, lines 7-14 of Miyamoto, "[t]he nanotube may be applied with mechanical stress to controllably vary a current flow direction, i.e., from a linear current along a tube axis to a spiral current around a tube surface."

In view of the foregoing, Applicants respectfully submit neither Miyamoto, nor Smalley, nor the depiction in Figure 1 of the instant application, whether taken singly or

in combination, teaches or suggests the features of independent claims 1, 7 and 10 recited above. Accordingly, Applicants respectfully submit that independent claims 1, 7 and 10, as amended, are in condition for allowance for at least the foregoing reasons. Moreover, previously presented dependent claims 4-6, 8-9, 11-12 and 15-16 and new dependent claims 17-20 are allowable at least because of their respective dependence upon allowable claims 1, 7 or 10, and the reasons set forth above. Thus, Applicants respectfully request that the rejections of claims 1, 4-12 and 15-16 under 35 U.S.C. § 103(a) be withdrawn.

Conclusion

In view of the foregoing, Applicants respectfully request entry of the amendments to place the application in clear condition for allowance or, in the alternative, in better form for appeal. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicants' undersigned representative to expedite prosecution.


If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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